Economic Spotlight

Labour Force

December 3, 2013

Participation in Alberta's Labour Force

The impact of population ageing

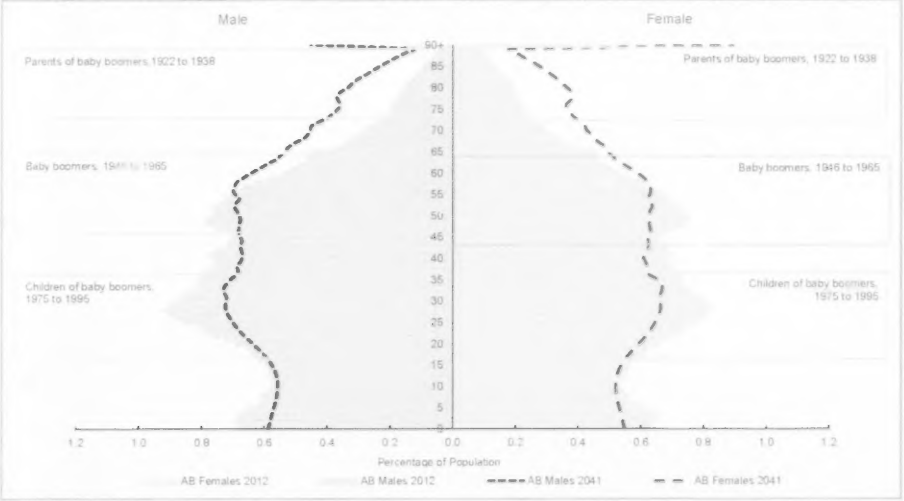
Population ageing has significant implications for Alberta's labour market. The baby boomers are approaching the typical age of retirement, with the oldest of this cohort turning 65 in 2011. Since seniors tend to participate less in the labour force than their younger and middle-aged counterparts, ageing will place constraints on the supply of labour in Alberta and across Canada. According to the latest projection, the number of working-aged Albertans for each retirement age person will continue to decrease.

This Spotlight examines recent population ageing and labour force trends before developing scenarios of Alberta's future labour force participation. Reflecting the impact of an ageing population, all scenarios point to a decline in Alberta's overall labour force participation rate over the next 30 years.

Population Ageing Trends

The baby boomers – those born between 1946 and 1965 – are at, or approaching, the age of retirement. As of 2011, the oldest baby boomers turned 65. As a testament to the size of the cohort, baby boomers made up approximately one quarter of Alberta's population in 2012, by far the largest share of any equivalent age cohort (Chart 1). As a result, the population is ageing at both the provincial and the national level. The share of Canadians aged 65 years or older has grown from 8.6% in 1976 to 14.9% in 2012 while the share of Albertans in this age group has grown from 7.4% to 11.1%.

Chart 1: Alberta Population Pyramids, 2012 vs. 2041



Sources: Alberta Treasury Board and Finance

Though Alberta's population is relatively young, it is still ageing overall, much like the rest of Canada.

Population ageing will result in proportionally fewer people of working age. This is clear when looking at Alberta's old age dependency ratio, which is the ratio of people aged 65 or older to those of typical working-age (15-64). Due to ageing effects, the old age dependency ratio is increasing at both the provincial and the national level. Between 1976 and 2012, Canada's ratio increased from 13.1% to 21.6% while Alberta's increased from 11.4% to 15.7%. Based on the latest Treasury Board and Finance's medium-growth projection, Alberta's old-age dependency ratio is expected to increase to 29.4% by 2041.[1] At the national level, Statistics Canada expects Canada's old-age dependency ratio to nearly double by 2041, increasing from 21.6% in 2012 to 39.7%[2] (Chart 2).

Fortunately, immigration tends to mitigate the effects of population ageing on the labour force. As immigrants mainly come to Alberta for employment opportunities, they tend to be of working age. In 2011, 86.2% of Alberta's net migrants were aged 15-64 (Chart 3). However, even with in-migration, Alberta's population is expected to age over the next 30 years due to the substantial size of the baby boomer cohort.

[1] Alberta Treasury Board and Finance – *Alberta Population Projections by census division, 2013-2041*. August 2013.

[2] Statistics Canada. Population Projections for Canada, Provinces and Territories. Medium-growth (M1) projections.

Labour Force Participation Trends

The labour force participation rate - the share of those 15 years or older who are employed or seeking employment - has risen over the past 35 years in Alberta (Chart 4), from 67.4% in 1976 to 73.4% in 2012. The record high was in 2008, when the rate hit 74.3%. Much of the improvement reflects Alberta's fast-growing economy, which has increased employment opportunities. In addition, two demographic factors played a major role. First, the baby boomers came of working age. Second, and most importantly, women entered into labour markets in growing numbers. Alberta women increased their labour force participation from 51.6% in 1976 to 67.0% in 2012. Labour force participation rates have been leveling off in more recent years, partly due to the effects of population ageing.

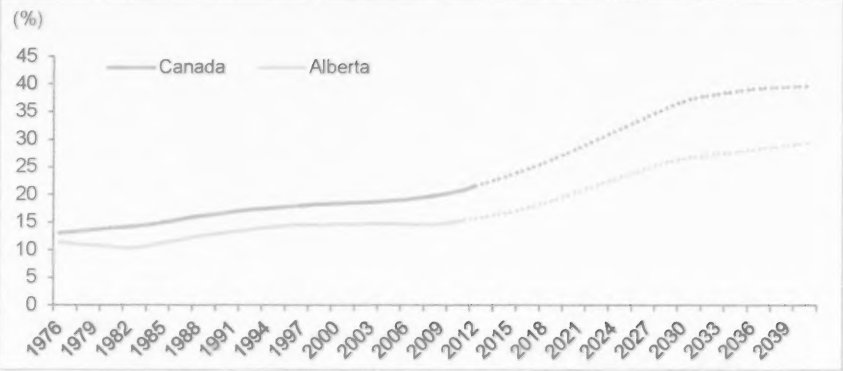
Retirement patterns influence labour force participation rates

Retirement patterns are key determinants of labour force participation. Traditionally Canadians have tended to retire by the age of 65; however, many Canadians are now retiring much later. According to a recent survey, the share of Canadians who expect to be retired at 66 was 27% in 2012, down from 51% in 2008.[3] Statistics Canada reports that the average age of retirement in Canada was 62.9 in 2012, which is 1.5 years higher than in 2008 and one year above the average of the last 10 years. A number of factors may be contributing to a shift in retirement attitudes, including improved health, more flexible work arrangements, and financial considerations.

Life expectancies have increased significantly in recent years, with Alberta's female life expectancy rising from 81.1 years in 1992 to 83.1 years in 2012, and male life expectancy increasing from 75.4 years to 78.5 years over the same period. Life expectancies are projected to increase to 86.4 years

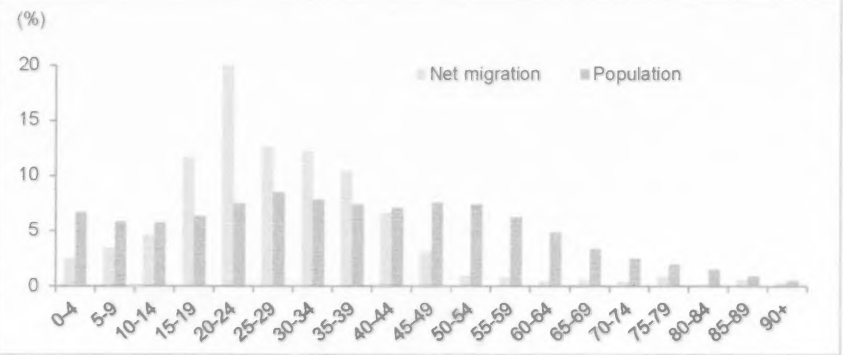
[3] *2013 Sunlife Canadian Unretirement index report*. Sunlife Financial.

Chart 2: Old-Age Dependency Ratio*



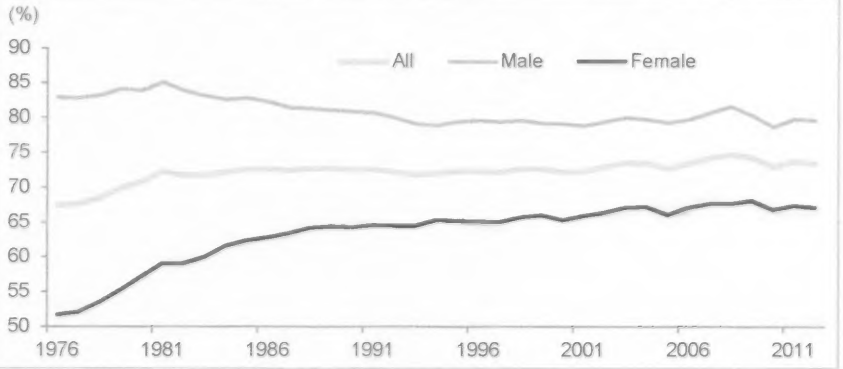
Sources: Statistics Canada M1 population projection and Alberta Treasury Board and Finance medium-growth projection. *Ratio of those 65+ to those 15-64 year old population.

Chart 3: Share of Alberta Migrants and Population by Age Group, 2010



Sources: Statistics Canada

Chart 4: Alberta Labour Force Participation Rate



Sources: Statistics Canada

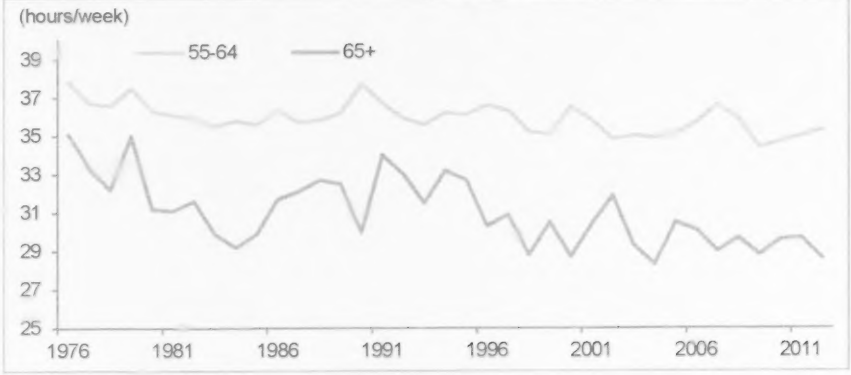
and 82.9 years by 2041 for females and males, respectively, according to Treasury Board and Finance. With life expectancy increasing, Albertans may choose to remain in the workforce well past the traditional retirement age of 65.

Furthermore, in part to accommodate ageing workers, there has been a move toward more flexible work arrangements that allow for more part-time and freelance work. Many Albertans are now able to phase-in their retirements and to collect retirement and employment income simultaneously. Shifts toward phased retirement are manifested in the shorter work weeks for workers older than 55. According to Statistics Canada, the average work week of working Albertans aged 55-64 decreased from 37.8 hours to 35.3 hours between 1976 and 2012, while the average work week of Albertans aged 65 or older decreased from 35.1 hours to 28.6 hours over the same period (Chart 5). A similar pattern is observed at the national level. Moving forward, flexible work arrangements will continue to keep ageing members in the workforce. This has the potential to somewhat offset the diminishing labour force participation rates associated with population ageing.

It is also possible that some people have not saved as much for retirement as originally anticipated. Nearly two-thirds (63%) of Canadians report that they will be working at 66 based on need, and not out of desire.[4] Pension plans have moved increasingly away from defined benefit and towards defined contribution arrangements, which do not guarantee a certain payout. Many of these plans have seen low returns in recent years due to historically low interest rates and, until more recently, weak equity market performance.

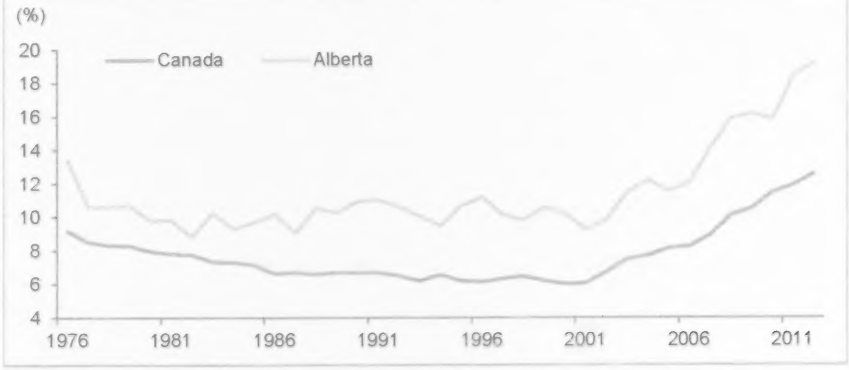
With Albertans staying in the labour force longer – whether by choice or by necessity – labour participation rates in Alberta have increased considerably over the past 10 years. Participation of

Chart 5: Alberta Average Work Week



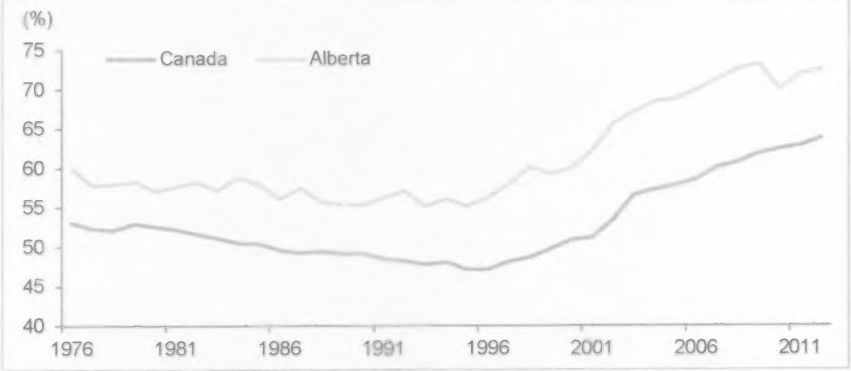
Source: Statistics Canada

Chart 6: Labour Force Participation Rates, Aged 65+



Source: Statistics Canada

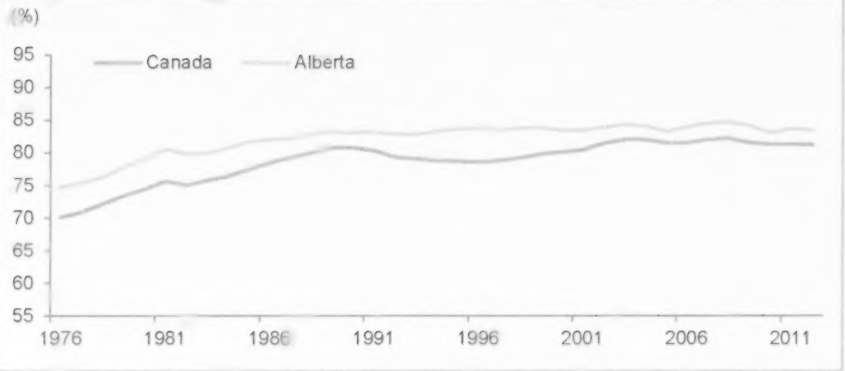
Chart 7: Labour Force Participation Rate, Aged 55-64



Source: Statistics Canada

[4] *2013 Sunlife Canadian Unretirement index report*. Sunlife Financial.

Chart 8: Labour Force Participation Rate, Aged 15-54



Source: Statistics Canada

the 65+ age group has nearly doubled from 9.8% in 2002 to 19.2% in 2012 (Chart 6), and participation of the 55-64 age group has increased from 65.6% to 72.6% over the same period (Chart 7). In contrast, the participation rate among Albertans aged 15-54 has been relatively constant (Chart 8). A similar evolution of participation rates is also observed at the national level.

Alberta's future labour force participation under different scenarios

As previously discussed, population ageing will continue to have profound impacts on Alberta's labour force. Though migration and rising labour force participation among older workers will help offset some of these effects, ageing will continue to weigh on labour force participation in Alberta.

To explore the impact of population ageing going forward, a number of scenarios were developed (Chart 9). These scenarios show how labour force participation rates could evolve over the next 30 years under a range of plausible assumptions around age- and sex-specific participation rates. These participation rates were then applied to Alberta Treasury Board and Finance's medium-growth population projections by age and sex.

The *cohort approach scenario* assumes participation rates for each age group and sex evolve according to historic norms, but with an emphasis on recent trends. In this scenario, a cohort analysis similar to that employed by the OECD is used.[5] Cohort analysis is preferred over simple extrapolation of historical participation rates since it captures recent economic, societal, and demographic trends. For example, the cohort approach picks up the effect of rising participation among the older population and of women, rather than assuming a continuation of the historically lower participation rates of these groups. Refer to the Appendix for a more detailed description of the cohort approach.

In the cohort approach scenario, the participation rate falls gradually over the next 30 years from 73.4% to 64.9%.

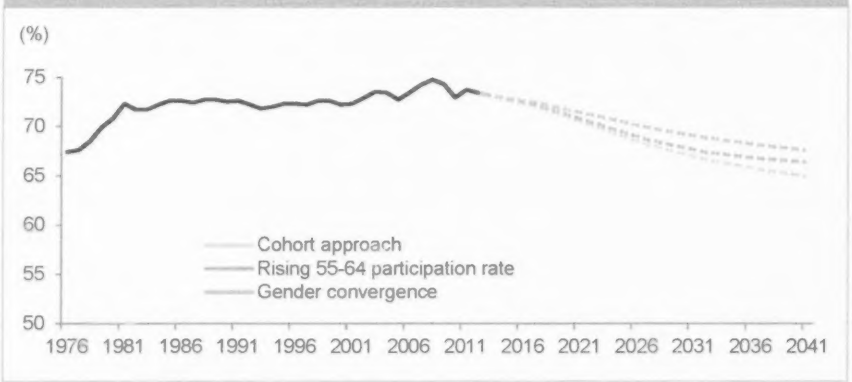
The *rising 55-64 participation rate scenario* is the same as the cohort approach, but with a sharper rise in the participation rates among the 55-64 age group. In particular, it assumes that Albertans aged 55-64 will gradually converge to the current participation rates of those aged 50-54 by 2043. In 2012, the participation rate of 55-64 year olds was 71.4% compared with 87.6% for the 50-54 age group. According to this scenario, Alberta's participation rate declines, but by a smaller amount than the cohort approach, reaching 66.4% in 2041.

The *gender convergence scenario* has female participation rates gradually moving closer to male rates. This scenario is motivated by the convergence of gender-specific participation rates in several Nordic countries.

Participation rate gender gaps vary considerably across OECD countries,

[5] Burniaux J.M., R. Duval and F. Jaumotte (2003). Coping with Ageing: A Dynamic Approach to Quantify the Impact of Alternative Policy Options on Future Labour Supply in OECD Countries. OECD Economic Department WP. N. 371.

Chart 9: Alberta's Labour Force Participation Rate Scenarios



Sources: Statistics Canada and Alberta Treasury Board and Finance

ranging from 39.2 percentage points (p.p.) in Turkey to 6.8 p.p. in Finland in 2012. The OECD country average gap was 18.9 p.p. (Table 1). The smallest gender gaps in participation rates tend to be in Nordic countries.

It is assumed that the gap between male and female participation rates in Alberta converges to just six percentage points, roughly half the 2012 gap. Of the three scenarios, the gender convergence scenario results in the smallest decline in Alberta's labour force participation, with the participation rate falling to 67.6% in 2041 (Chart 10).

Conclusion

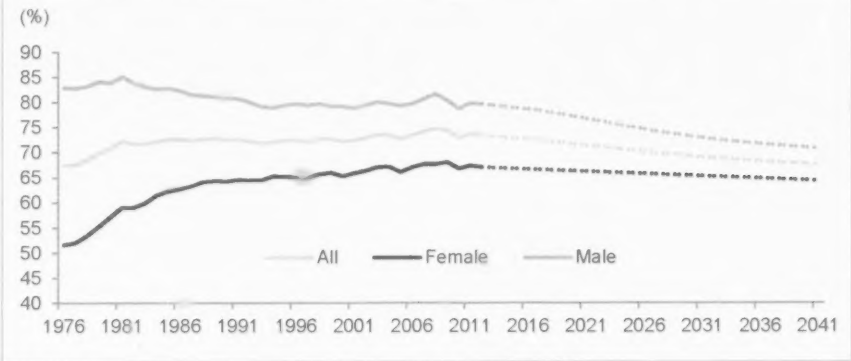
With the baby boomers moving into their retirement years, the share of Alberta's working age population is expected to decline. Population ageing of this magnitude will put downward pressure on labour force participation rates. Under a range of scenarios, participation rates are expected to decline over the next 30 years. A key implication is that ongoing improvements in labour productivity will be required to help offset the effects of population ageing, and support higher average living standards going forward.

Table 1: Labour Force Participation rates by Gender (%), 2012

	Male	Female	Percentage Point Gap
Norway	69.0	61.4	7.6
Canada	69.1	60.2	8.9
Alberta	79.6	67.0	12.6
United States	68.7	57.1	11.6
OECD Countries	68.8	49.9	18.9

Source: OECD, Statistics Canada, Alberta Treasury Board and Finance Calculations.

Chart 10: Alberta Participation Rate, Gender Convergence Scenario



Sources: Statistics Canada and Alberta Treasury Board and Finance

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Appendix

The cohort analysis uses five-year age cohorts between the ages of 15 and 69, as well as an aged 70+ cohort. Rates of entry into, or exit, out of the labour force for each five-year age group were calculated[1]. These entry or exit rates were then applied to existing participation rates of each cohort in order to approximate future participation rates. In this case, the five-year period between 2007 and 2012 was used to calculate entry/exit rates, which were then applied to existing participation rates. The participation rates estimated for 2013-2017 were then used to project the next five-year entry/exit and participation rates. This process was continued until the end of the projection period. Alberta's overall labour force participation rate was then calculated using the projected cohort participation rates in conjunction with the projected cohort population shares.

The formula for measuring entry rates and exit rates is given by Equation 1 and Equation 2 respectively. EN denotes the Entry rate, EX the Exit rate, and PR the participation rate for cohort i at time t. The entry rate is the difference between the current participation rate of the cohort and the participation rate of the cohort five years earlier divided by the portion of the cohort that was available to work but was not in the labour force five years earlier. The exit rate is the difference between the participation rate of the cohort five years earlier and the current participation rate of the cohort divided by the participation rate of the cohort five years earlier.

Next, the entry and exit rates were applied to existing cohort participation rates in order to project future participation rates. If the cohort experienced a positive entry rate, the entry rate was used for the projection; otherwise, the exit rate was used. When using entry rates, the projected participation rate of the cohort is equal to the participation rate of the cohort five years earlier plus the entry rate of that cohort multiplied by the portion of the cohort that was available to participate, but was not yet participating five years earlier (Equation 3). When using exit rates, the projected participation rate of a cohort is equal to the participation rate of that cohort five years earlier multiplied by 1 minus the exit rate of the cohort five years earlier (Equation 4).

Once individual cohort participation rates were estimated, overall labour force participation was projected by applying the estimated cohort participation rates to the projected cohort population shares (PS). The overall labour force participation rate (LFP) is the sum of the estimated labour force participation of each cohort multiplied by that cohort's expected share of the working-age population (Equation 5).

(Equation 1)

$$EN_{i,t} = \frac{PR_{i,t} - PR_{i,t-5}}{(1 - PR_{i,t-5})}$$

(Equation 2)

$$EX_{i,t} = \frac{PR_{i,t-5} - PR_{i,t}}{PR_{i,t-5}}$$

(Equation 3)

$$PR_{i,t} = EN_{i,t-5} \times (1 - PR_{i,t-5}) + PR_{i,t-5}$$

(Equation 4)

$$PR_{i} = (1 - EX_{i,t-5}) \times PR_{i,t-5}$$

(Equation 5)

$$LFP_{t} = \sum PR_{i,t} \times PS_{i,t}$$

[1] Entry and exit rates cannot be calculated for cohorts aged 15-19 because these cohorts are entering the labour force for the first time. For these cohorts, a 10-year average participation rate was used rather than the entry/exit rate approach.